data in a manner tailored to their needs. Although the Hypertext Markup Language is the Web language of choice, it is problematic and limiting. XML solves many of the problems Web authors have experienced with HTML and is responsible for XHTML, a recasted HTML, in XML. Web authors and other publishers will be using XML for many years because it offers them an effective and powerful multi-media publishing solution. XML is designed to conform to authors' needs, allowing Web documents a much greater level of structural and stylistic customization than has been traditionally allowed with HTML. XML is the result of an effort to make it possible to distribute Standard Generalized Markup Language documents over the Web. It is designed as a very small subset of SGML and fulfils the goals of the project. XML documents can be easily distributed and displayed on the Web, as can SGML documents that are made to conform to the XML subset. Independent of this goal, XML offers HTML developers, uninterested in the merits of SGML, a chance to customize and add proprietary elements to HTML.

XHTML (eXtensible HyperText Markup Language) is the first step toward a modular and extensible web, based on XML. It provides the bridge for web designers to enter the web of the future, while still being able to maintain compatibility with today's HTML 4 browsers. It is the reformulation of HTML 4 as an application of XML. It looks very much like HTML 4, with a few notable exceptions. Thus, if one is familiar with HTML 4, XHTML will be easy to learn and use. XHTML 1.0 was released on January 26th as a Recommendation by the W3C. XHTML is the major change to HTML since the introduction of version 4.0 in 1997. In effect, it reformulates HTML as an XML application. Hence, it can be viewed in HTML browsers as well

as XML-based systems. The result is that web pages are accessible by almost anyone regardless of the browser device utilized to access the Web.

The XSL language permits user to alter and modify XML documents. In particular, XSL consists of two parts including a method for transforming XML documents and a method for formatting XML documents. XSL can be used to define how an XML file should be displayed by transforming the XML file into a format that is recognizable to a browser. One such format is HTML. Normally XSL does this by transforming each XML element into an HTML element. XSL can also add completely new elements into the output file or remove elements. It can rearrange and sort the elements, and test and make decisions about which elements to display, and a lot more.

RML is an application of XML, just as HTML and XML are applications of SGML. RML is tailored to the specific needs of the present assignee's application as described in the co-pending patent applications. Developers use RML's customized elements to add structural context to the content provided on a client Website. By converting HTML first to XML, then to RML, developers can structure data appropriately for a variety of presentation formats. Client data from requested URLs are retrieved and cached, then converted from HTML to RML via predefined rule sets. RML is used to create a "presentation shoe" appropriate for the wireless device. RML follows the structural rules for XML. However, the specific elements in RML are unique. The smallest unit of an RML document that encapsulates an idea is an *atomic*. Atomics contain data that is determined by the content provider (for Catalyst™, this is the client). They should contain an undividable amount of content. A paragraph of text, a heading, a link to a news story, or a picture could be an

atomic. Developers modify every element by assigning *attributes* to the element. These attributes are used to determine how the element is displayed to the wireless device.

In one system used for generating a wireless web page (known as Nomad), a user takes data from an XHTML page and places it into some kind of an ARML structure. Typical ARML nodes are groups and atomics, just as in orthodox RML. By doing this, the user defines a structure that shows how the selected XHTML data are qualitatively related. In Nomad, the user will describe the qualitative relationships between various logical sets of data in the form of some ARML structure, and it is likely that each of the sets will be entirely contained within it's own ARML group. If the number of such logical groups of data changes from page to page or from time to time, the user cannot be expected to rework so as to change the number of ARML groups in their wireless page, especially since it is possible to write XSL that can handle changing numbers of qualitatively related data sets in XML. In addition, without generalization it would be impossible for a user to make something wireless inherently dynamic, like a search page.

The problem is then how to allow users to specify which ARML nodes might need to change in number as the XHTML changes. In addition, how can the user input be properly converted into the correct guide (e.g., XSL)? This is the problem of generalization. Thus it is necessary to come up with an innovative generalization system and method that overcomes the above problems and limitations and it is to this end that the present invention is directed.

Summary of the Invention